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Cardiology solutions



The Future of Cardiology

Issue 2: Exploring the medium-term horizons and barriers for innovation across cardiac care

Digital, virtual, personalisation and intelligence-driven possibilities for cardiology

Exploring the medium-term horizons and barriers for innovation across cardiac care

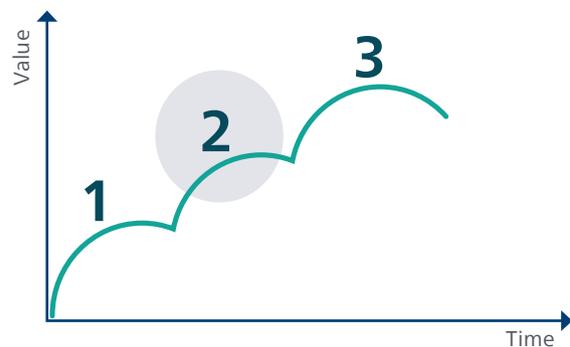


Ruben Olivier, Cardiovascular Solutions Lead at Philips UK&I

In the first article of our Future of Cardiology series, Ruben Olivier, Cardiovascular Solutions Lead at Philips UK&I, explored the immediate innovations impacting cardiology as we start to move through the COVID-19 pandemic.

And yet, what of the medium-term?

In this feature, the second of a series of three, Ruben Olivier continues to plot the developments and innovations he identifies using McKinsey's horizons for growth framework and introduces his projections for Horizon 2: Mid-term innovations to expect in cardiology, 1-2 years out.



McKinsey's horizons for growth framework

Horizon 2: Medium-term innovations to expect in cardiology.

Timeframe: 1-2 years out.

Earlier and more targeted diagnosis for improved chronic disease management and its positive affect on prevention

Chronic disease management is a key focus of the value-based care agenda, and yet we need to be thinking beyond heart diseases to develop more comprehensive cardiology solutions.

Identifying heart disease earlier has the added ability to limit disease progression and reduce the prevalence of stroke. Diseases of the heart touch all areas of the circulatory system and impact all aspects of our lives - so reducing the threshold of how and when people get heart disease and how we treat it as a pathway, will reduce the prevalence of a plethora of other diseases related to it.



Medium-term wins: More awareness and focus on the pathway where we can accurately provide targeted diagnosis. Care should be focused across clinical disease pathways from pre-diagnosis to post-discharge with all data captured in a platform where it is accessible to professionals and available to the patient to manage their own health.

A shift in everyday understanding in people's and General Practitioner's (GPs) relationships with their hearts

The health of our hearts have far wider reaching implications than most of us realise. From poor dental hygiene having an impact on the cardiac valves, through to the relationships between the lungs and kidneys and their impact on our blood pressure and circulatory issues, our hearts are integral, and as Ruben Olivier observes, that's just the plumbing.

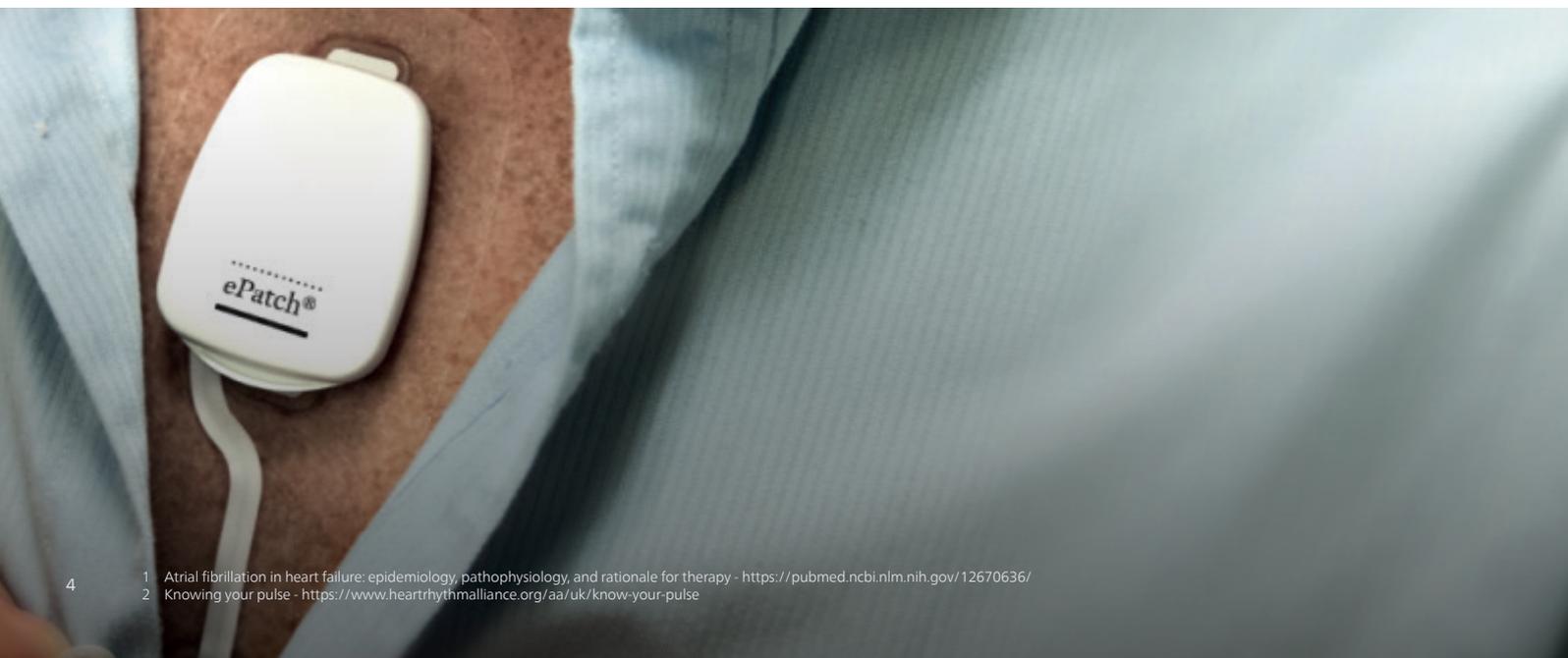
"Beyond the role our heart has on our other organs, if we look at its own make-up and electricity, then atrial fibrillation is a silent killer. If your heart doesn't deliver a synchronised contraction between the atria (top part of the heart) and the ventricle (lower part of the heart), the atria vibrates due to rapid firing electrical chaos, this electrical chaos most often result in the pooling of oxygenated blood within the atria and reduced cardiac output of up to 20%.¹ Blood that has been pooling for a period of time has an increased viscosity and starts to create clots and clots in your heart can get dislodged and can go to your brain. That's a stroke. If the clot goes into your lungs, it's a pulmonary embolism. Into the legs, it's deep vein thrombosis. It all comes back to the heart, its highly complex and affects our entire body and mind."

And yet, as humans we're more conceptually than functionally connected with our hearts, until something major goes wrong. Ruben Olivier highlights the need for a focus on education to enable people to better understand

their hearts and how to look after them, citing campaigns such as 'Knowing your pulse'² by NHS England, as stand out examples.

This closer connection is also being enabled by the rise of smart devices that are integrating heart rate data. Increasingly smart watches register not only heart rates but flag high or low rates - while innovative automotive manufacturers have started to integrate sensors on steering wheels that detect if a heart rate is dropping low (and therefore the driver is falling asleep) and vibrates to wake them up. Ruben Olivier predicts that these commercial applications will continue to become ever present. With the click of a button and a virtual GP consultation, patients will have medical grade ECG holter devices with the Philips Biotelemetry ePatch, delivered to their front door and reports being sent directly to healthcare providers, without patients needing to step inside a hospital. This unrestricted access will have the positive effect of bringing people more in touch with their heart, how it functions and how best to look after it.

Ruben Olivier explains: "It makes it much more real to have a heart sensor in your life. You start to have a different relationship with your heart and you become more aware. Increasingly people will think, "I'm feeling dizzy or short of breath, I need to check my heart rate". This change in the way we manage our lifestyles has come about very quickly in a very short space of time and it will only accelerate in the current climate where the responsibility of healthy living is moving to the individual."





This improved relationship with our hearts doesn't just extend to patients, it also applies to GPs too. According to an article in Health Service Journal (HSJ) entitled, Improving the pathway for people with severe heart valve disease, Professor MacCarthy, consultant cardiologist and lead of the structural interventional service at King's College Hospital Foundation Trust, purports that the COVID-19 crisis is a "reset" which offers opportunities to change pathways. "When it comes to primary care, he argues that the message to GPs must be to consider aortic stenosis in patients presenting with symptoms such as tiredness and breathlessness – and to listen to patients' hearts."³

It's a sentiment echoed by Wil Woan, chief executive of charity Heart Valve Voice, who is also worried about the patients who have put off visiting their GP and being reviewed by a specialist during the pandemic period and wants to encourage GPs to have the heart front of mind. He is cited as saying, "We've got to start thinking about all these people who, when covid isn't prevalent, start going to the GP and telling their GP that six months ago they started passing out." Later diagnosis means deteriorating condition and "more complicated, more expensive procedures with worse outcomes."⁴

Medium-term wins: Education in terms of the relationship our heart has with our symptoms and awareness that our heart controls more than just our "feelings" and circulation, our heart is the beating pump that is easy to monitor but hard to contain its impact on our entire body.

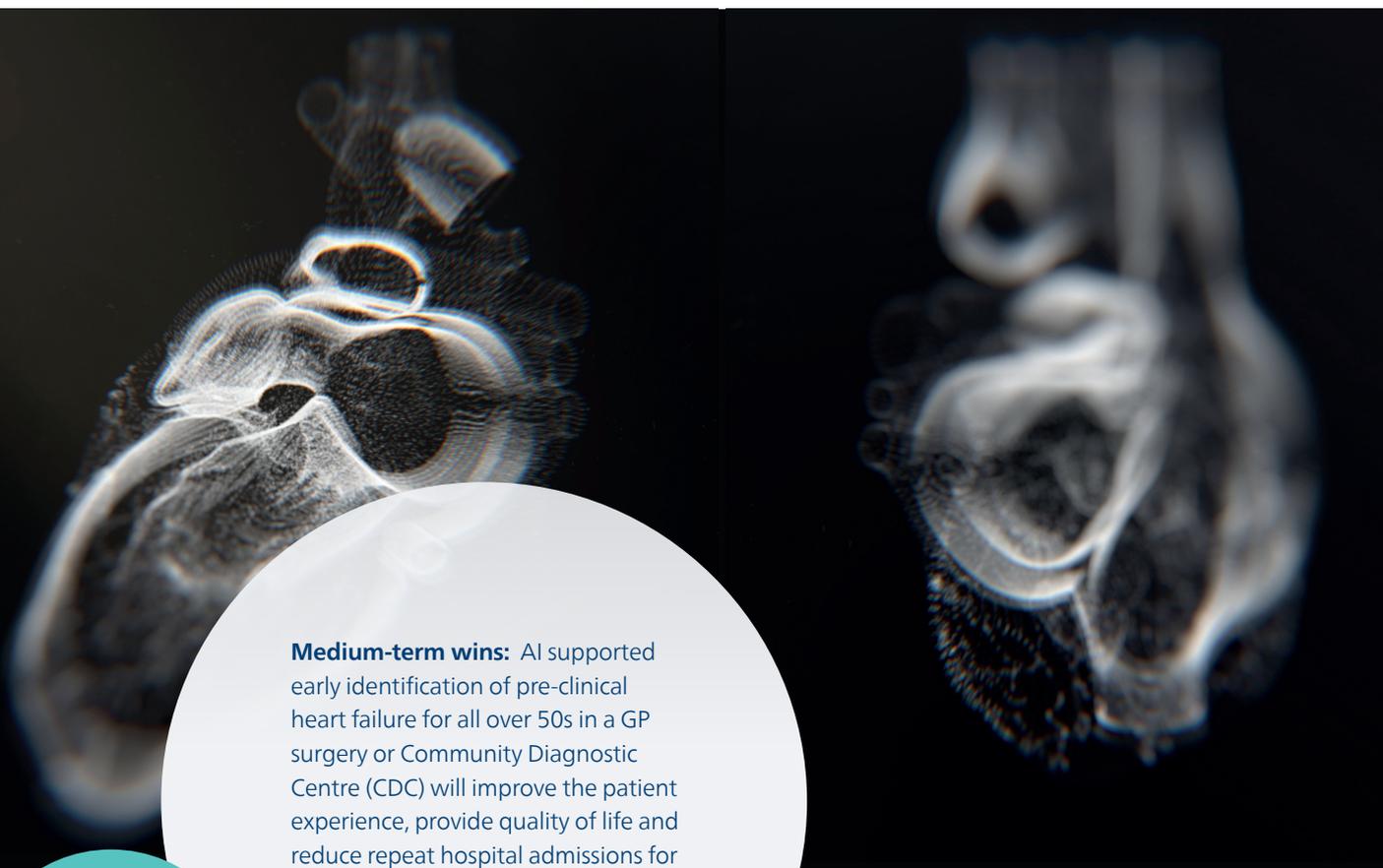


3 Improving the pathway for people with severe heart valve disease, Claire Read, HSJ, 29 June 2020 <https://www.hsj.co.uk/service-design/improving-the-pathway-for-people-with-severe-heart-valve-disease/7027845.article>
4 Improving the pathway for people with severe heart valve disease, Claire Read, HSJ, 29 June 2020 <https://www.hsj.co.uk/service-design/improving-the-pathway-for-people-with-severe-heart-valve-disease/7027845.article>

Early identification of heart failure risk

Currently there is no treatment for heart failure beyond a heart transplant. Treatments for patients diagnosed with heart failure, therefore, are palliative and very seldom curative, with the exception of heart transplants. Identifying and diagnosing those patients earlier has a big impact on patient quality of life, outcomes and the global healthcare economy.

Global longitudinal strain (GLS) measured by echocardiography is increasingly recognised as a more effective technique than conventional ejection fraction (EF) in detecting subtle changes in left ventricular (LV) function and in predicting outcomes. It's especially valuable in monitoring patients in remission after undergoing chemotherapy, allowing early identification and management of pre-clinical heart failure diagnosis, commonly known as cardiotoxicity.



Medium-term wins: AI supported early identification of pre-clinical heart failure for all over 50s in a GP surgery or Community Diagnostic Centre (CDC) will improve the patient experience, provide quality of life and reduce repeat hospital admissions for undiagnosed and the mismanagement of heart failure patients.⁵



These are Ruben Olivier's medium-term innovation projections for the future of cardiology. For immediate and longer term innovation projections, read the additional articles in this Future of Cardiology series. ›

Interested to learn more?

Lets talk. Even better, lets collaborate

We'd love to help you apply Operational Intelligence to help solve your key people, process and technology challenges. For more information, please visit <https://www.philips.co.uk/cardiologysolutions>



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